Science, Jews, and Secular Culture

STUDIES IN MID-TWENTIETH-CENTURY AMERICAN INTELLECTUAL HISTORY

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CHAPTER FIVE

The Defense of Democracy and Robert K. Merton’s Formulation of the Scientific Ethos

Disciplinary discourses often contain versions of their own history that historians, when they bother to look, find too narrow. These self-contained narratives of a discipline’s past emphasize the analytic power of the specific, creative works that have shaped the discipline, and pay little attention to whatever extracurricular engagements may have helped to inspire these acts of creativity. But historians rarely bother to look. They are usually content to leave to the discipline’s own chroniclers the task of assigning historical meaning to pivotal innovations and classic texts. Robert K. Merton’s contributions to sociology have long been subject to this pattern of attention and neglect. Sociologists have developed and reproduced a disciplinary memory recalling Merton’s having established or transformed one research program after another, while historians writing the transdisciplinary history of Merton’s generation have largely bypassed his work. These historians have taken account of sociological work more openly addressed to the concerns of a nonprofessional audience, such as David Reisman’s The Lonely Crowd (1950), but rarely of the more “narrowly professional” work of Talcott Parsons or Merton. This was the historiographical context in which I became interested in Merton’s contributions to the subdiscipline of sociology of science.

In the essay reproduced here, I try to show that one need not diminish in the slightest Merton’s contributions to sociology by discovering and analyzing the function these same ideas performed in the cultural wars of the era of World War II. I argue that Merton’s formulation of the “ethos” of science—its prevailing ideals for cognitive behavior—constituted a distinctive contribution to the ideology of liberal democracy as that ideological cause was being developed by Anglophone intellectuals in the West during the late 1930s and early 1940s. I also try to identify the specific features of Merton’s formulation of the scientific ethos that enabled this formulation to play a disciplinary role never attained by the bulk of those contemporaries of Merton’s who shared his belief that democracy and science belonged together. Indeed, these features are the same: the points of Merton’s that were the most ideologically effective in 1942 were exactly the ones that most facilitated the building of sociology of science as a professional discipline a quarter-century later.

Long after completing this study I became aware of an aspect of Merton’s life relevant to the themes of this volume, to which I went to call attention here: his Jewish upbringing. In his Charles Homer Haskins Lecture of 1994 for the American Council of Learned Societies, Merton has described his childhood in Philadelphia as Mayer H. Schlichirn, and the process by which he took on the very English name by which he has been known throughout his career. See Robert K. Merton, “A Life of Learning,” ACLS Occasional Paper No 25 (New York, 1994), pp. 9.


The faith that science and democracy are indissolubly bound up in a single cultural mode had enjoyed a long history before it was passionately reaffirmed in the late 1930s and early 1940s by enemies of the Third Reich. Hitler’s repudiation of democracy and his effort to endow German science with a distinctly Nazi orientation seemed to confirm once again the naturalness of the connection between democracy and science, and to demand a defense of both. Especially in the English-speaking world did antifascist intellectuals insist that the scientific enterprise was an expression of democratic political culture, and that the autonomy of science depended upon the strength of democracy. The ranks of democracy’s defenders did include some persons aloof from science, and eager to oppose fascism in the name of religious and philosophical principles that antedated modern science. But democracy’s link with science was addressed by a host of academic intellectuals in the United States and Great Britain who thereby entered into what one of their number, the young sociologist Robert K. Merton, called “realistic participation in the revolutionary conflict of cultures.”

Merton made this observation in an essay of 1942 entitled “A Note on Science and Democracy.” The paper was to become in later decades, under a succession of different titles, one of the most widely discussed papers in a discipline that Merton helped to found: the sociology of science. What gave this paper its role in the discipline’s development during the 1960s and 1970s was, of course, its formulation of the scientific ethos: Merton’s attribution to science of the four norms, “universalism,” “disinterestedness,” “communism,” and “organized skepticism.” Not all sociologists of science have found Merton’s formulation adequate, but it has dominated their efforts to explicate the governing values of scientific communities, and has been at the center of the controversy over whether such values actually affect the behavior of scientists and the course of scientific development. These sociologists, however, have not typically been interested in the relation of science to democracy. This once exciting topic has long since been dropped as naive or uninteresting. Moreover, the few scholars who have taken up this question recently are more often than not aloof from Merton’s entire
approach to it, as they tend to regard science as part of a system of domination and a "threat." In philosopher Paul Feyerabend’s phrase, "to democracy."

The more well-defined has become the sociological study of science done in Merton’s name, the more detached has Merton’s formulation of the scientific ethos become from a context in which the practice of sociology and the defense of democracy went comfortably together. Merton himself has aided in this process of separation. What was once “A Note on Science and Democracy” turned up in *Social Theory and Social Structure* (1949, 1957, and 1968) as the somewhat more sociological “Science and Democratic Social Structure.” The same essay had altogether escaped a democratic title by 1973, when it was billed, in *The Sociology of Science*, as “The Normative Structure of Science.” By 1977, Merton’s perspective on his early contribution had become so controlled by the ability of that contribution to speak to an ongoing, technical discipline that he allowed himself to express apparently genuine puzzlement that he had somehow failed, in 1942, to invent the method of “citation analysis.” The antifascist setting of Merton’s formulation was almost an embarrassment to Merton’s editor of 1973, Norman W. Storer, who implied that the vulnerability to criticism of the 1942 piece derived from the peculiar circumstances of its publication. “It was originally written at the request of Georges Gurvitch, then a refugee from Nazi-occupied France, for the first issue of his ill-fated *Journal of Political and Legal Sociology*, which expired soon after it was born,” explains Storer, who adds that on account of the needs of Gurvitch’s journal “the paper was saddled” with its “rather misleading title.”

“A Note on Science and Democracy” is an entirely appropriate title for what Merton wrote in 1942. If its bluntness as an instrument for performing more than the most rudimentary work in sociology is too obvious for even so devoted a Mertonian as Storer to deny, the essay stands as one of the most robust and firmly grounded of its era’s contributions to the intellectual defense of science and democracy. Merton’s formulation of the scientific ethos is a benchmark in the emergence of social definitions of the scientific enterprise and in the development of ideological self-consciousness on the part of apologists for science. It is also an intelligent and revealing artifact of the effort made by a generation of intellectuals to vindicate a set of social values identified with the liberal political tradition.

Gurvitch’s journal, moreover, was an undertaking of some consequence. During its five years of operation it served as a forum for some of the period’s most creative and energetic young scholars; the issue on “Democracy and Social Structure” to which Merton contributed also drew articles from Robert M. McIver, Karl N. Llewellyn, David Riesman, Talcott Parsons, and Kingsley Davis, as well as a book review from Claude Lévi-Strauss. Merton shared with these men a willingness to commit his scholarship to Gurvitch’s endeavor in social science and antifascism.

What Merton contributed to that endeavor is all the more striking an episode in intellectual history when we recognize an irony in it: the same aspects of Merton’s formulation that rendered it distinctive and effective as a vindication of democracy also rendered it susceptible to use by a professional academic discipline oblivious to its political matrix. To see how this ironic turn came about, we must begin by recognizing the political as well as the sociological matrix of Merton’s work leading up to his “Note.”

During the mid-1930s, Merton worked on his important dissertation, *Science, Technology, and Society in Seventeenth-Century England*, which was published in 1938, the same year in which he brought out an article on “Science and the Social Order.” This article includes several references to the “scientific ethos,” and is often cited as a kind of warm-up for “A Note on Science and Democracy.” The latter could just as well be seen as an afterthought to “Science and the Social Order.” The essay of 1938 carries on from Merton’s dissertation a Weber-inspired interest in cultural conditions that assure the “support of science,” and takes as its specific starting point the sober recognition that these conditions are sometimes terminated. Although “Science and the Social Order” seeks to explicate in a general way Weber’s aphorism that “the belief in the validity of scientific truth is not derived from nature but is a product of definite cultures,” Merton’s particular focus is on the conspicuous hostility to science manifest in Nazi Germany since 1938. He reviews the increased demands made upon science by the totalitarian Nazi state, and contrasts these demands to the relative autonomy allowed scientists in liberal, democratic societies. Amidst quotations from several Nazi spokesmen condemning liberalism and cosmopolitanism, Merton explains that the conflict between Nazism and science amounts to an incompatibility of ethos: “The sentiments embodied in the ethos of science—characterized by such terms as intellectual honesty, integrity, organized skepticism, disinterestedness, impersonality—are outraged by the set of new sentiments that the State would impose in the sphere of scientific research.” Merton’s notion of scientific ethos was thus developed in the course of an explicit consideration of the relation of Nazism to science. This consideration was continued in the “Note on Science and Democracy,” which includes a number of passages taken from the essay of 1938.

The “Note” itself begins by alluding to the widespread “revolt against science” that has “led scientists to recognize their dependence upon particular types of social structure,” and has compelled them to vindicate
the ways of science to man." In response to this pressure there has emerged "a clarification and reaffirmation of the ethos of modern science." This ethos, Merton explains, is a "complex of values and norms which is held to be binding on the man of science." Examination of this complex can introduce the larger problem Merton wants to put on the academic agenda: "the comparative study of the institutional structure of science." Comparative work of this sort had only begun, Merton acknowledged, but he found "some basis for the provisional assumption that science is afforded opportunity for development in a democratic order which is integrated with the ethos of science." The pursuit of science has not been "confined to democracies," Merton granted, but he was quick to follow up his suspicion that democracy is peculiarly conducive to the advancement of science; he launched into an account of "universalism," the norm to which he devotes the most attention and to which he most pointedly contrasts Nazism. Merton was anything but evasive on the political significance of his analysis of scientists' profound determination to ignore "race, nationality, religion, class and personal qualities"; his conclusion about the norm of universalism bears quoting because it manifests the concern in this essay that was as vital to the antifascist preoccupations of 1942 as it was trivial to the cause of sociology of science three and four decades later:

However inadequately it may be put into practice, the ethos of democracy includes universalism as a dominant guiding principle. Democracy is tantamount to the progressive elimination of restraints upon the exercise and development of socially valued capacities. Impersonal criteria of accomplishment and not fixation of status characterize the democratic society. Insofar as such restraints do persist, they are viewed as obstacles in the path of full democratization. To the extent that a society is democratic, it provides scope for the exercise of universalistic criteria in science. 10

Merton's discussions of his other three norms were brief and less explicitly directed to the contrast between Nazi Germany and democratic states. The second norm, "communism," Merton linked to societies with opportunity for free discussion. "Secrecy is the antithesis of the norm; full and open communication is its enactment." Merton's "communism" was the belief in the "common ownership" of the results of science. In potential conflict with this norm was "the definition of technology as private property" in a capitalist economy. To get around this, scientists were either "advocating socialism," Merton pointed out, or were taking out patents on their own work in order "to ensure its being made available for public use." 11

This public dimension of science is also addressed in Merton's account of "disinterestedness," his third norm. What matters to Merton here is science's institutionalized aloofness from personal self-aggrandizement; the "public and testable character of science" demands the "exacting scrutiny" of one's peers, with the result that "fraud" is virtually absent "in the annals of science." Individuals and interest groups are prevented from shaping in their own interest what the society accepts as truth. Such abuses increase, however, when the structure of control exercised by qualified peers is rendered ineffective, "as in Nazi Germany." 12

"Organized skepticism," Merton's fourth and final norm, entails a refusal to respect the sacred. Science's insistent questioning can create tension within political, religious, or economic spheres of life; conflict can intensify either with the expansion of science or when institutions other than science "extend their area of control." Merton concludes his discussion of organized skepticism, and the entire "Note on Science and Democracy," by observing that in "modern totalitarian societies, anti-rationalism and centralization of institutional control both serve to limit the scope provided for scientific activity." 13

What made the essay of 1942 so striking a contribution to contemporary discourse about "science and democracy" was its claim that democratic values are institutionalized in a concrete, social constituency. Most other contributors lacked Merton's sense that science was a cultural system, a pattern of attitudes actually embodied in a community. Admittedly, they might affirm the link between science and democracy, but they tended to depict both in the abstract. In a characteristic affirmation, one patriot pointed out that both science and democracy required "the maintenance of the balanced function of the whole through the balanced coordination of its parts." 14

Democracy and science, it was commonly noted, shared such qualities as freedom of thought and respect for the dignity of the human race. 15 These qualities were commonly attributed to scientists or to democracies as individuals or to the general "spirit" of science or of democracy. In one of the most theoretically ambitious discussions of the relationship, the philosopher Abraham Edel compared what he took to be the goals, techniques, and attitudes of science and of democracy, but never spoke about their embodiment in institutions. 16 Sidney Hook, in one of the most energetically argued and widely noted contributions to the cause, treated the era's conflict—between science and democracy on the one hand and their common enemies on the other—as a choice individuals could make between alternative sets of beliefs on behalf of which arguments were to be given. This was not, in itself, a mistake on Hook's part, and there's no doubt that Reason, Social Myths and Democracy had more to say about the ideological issues of the moment than did "A Note on Science and Democracy." But Hook's work is an endeavor in conven-
tional political argument, and thus differs from Merton's, despite the fact that Hooke begins with the notion of " ethos" and sees his book as a brief in support of the ethos constituted by the social values of science and democracy. Merton, by depicting science in terms of an interlocking set of specific, institutional imperatives, endowed science with a social weight and concreteness that made it seem all the more formidable an extension of any social order with which it could be found to bond, and all the more implaceable an enemy of any social order with which it could not.

That Merton could contribute this emphasis to the discussion owed much to the fact that he was, after all, a sociologist. Among American sociologists he was, moreover, unusually conscious of the European tradition of Durkheim, Weber, Pareto, and Mannheim that was conducive to the viewing of science as a social institution. As early as 1937 Merton wrote a critical essay for Isis on European work in sociology of knowledge. Merton's social sense of science was also promoted by Merton's familiarity with the Marxist tradition. Merton's work was not explicitly grounded in Marxist theory, but his concerns overlapped with those of J. D. Bernal and the circle of socialist scientists gathered around Bernal in England. Merton made frequent use of the writings of this circle, including Bernal's Social Function of Science.

Yet Merton's emphasis was not unique to him, even among American participants in this episode, nor can Merton's formulation of the scientific ethos be traced entirely to the fact that he was writing under a call to moral action or cultural criticism. Attention to some of the contributions most akin to Merton's can illustrate how easily Merton's "Note" blended into the antifascist discussions of the era.

An essay similar to Merton's was presented, for example, at one of the period's most overtly ideological gatherings, the "Conference on the Scientific Spirit and Democratic Faith" held in New York City in April 1943. This conference was designed as an answer both to fascism and to what the conference's leaders saw as a worrisome sort of antifascism: the movement of neo-Thomist and other conservative thinkers for "fixed principles, inflexible rules of morality, and unquestioned acceptance of a supernatural interpretation of human experience." Here Horace Kallen, Herbert Schneider, and a number of other self-styled "radical democrats" lamented the rise of authoritarianism, and celebrated the freedom and open-mindedness of scientific inquiry. Here, too, the director of Yale's Institute of Social Relations, Mark A. May, delivered "The Moral Code of Scientists." May does not use the term "norms," but he does provide a list of imperatives that make up the "code," and he asserts that these imperatives actually operate within "the fellowship of science." Moreover, May focuses on how this "culture of science" interacts with the "wider culture of society," including "the religious, political, and economic beliefs" with which scientific culture may come "into direct conflict." As May formulates the morality of science, it consists of six imperatives: "Absolute honesty" with oneself and with one's fellow scientists is one; "science has no place and no use for misrepresentation, Skullduggery . . . or deceitfulness in any form whatsoever." A second obligation for scientists is the fearless acceptance of verified facts regardless of the personal consequences of such acceptance. That the results of science are "common property to men everywhere" is May's third item, which is elaborated in his fourth: the contributors to this common store of knowledge are to be recognized as such, and not victimized by the "pirating" of their ideas. Fifth, controversies among scientists are to be settled by an appeal to facts rather than by ad hominem arguments, personal vituperation, or "an appeal to authority." Finally, the code includes full "freedom of inquiry," and it is here especially, May notes, that "dictators and tyrants have come into conflict with communities of scientists." May shares with Merton the recognition that the moral standards of science are only imperfectly enforced. Both provide examples of the violation of these standards, and treat the conflagration of the violators by other scientists as evidence of the vitality of the code. Although May does not point as explicitly as Merton does to the system of review by peers, May has in common with Merton a persistent emphasis on the institutionalized behavior of a social constituency: May contrasts the moral code "practiced" within the scientific community with that "practised in the "most civilized societies." May is more evangelical than Merton, expressing the hope that the spread of the international "subculture of science" will gradually "change man's attitudes, beliefs, and ways of thinking to conform more and more to those of science," while Merton is content to outline the points of harmony and strain between the scientific ethos on the one hand and the ethos of democratic and nondemocratic societies on the other. Had May's paper been kept viable through reprints, it might have been picked up in the 1960s by scholars building the discipline of sociology of science.

The notion of a scientific " ethos" was also advanced explicitly by the British biologist C. H. Waddington, in his polemically antifascist book of 1941, The Scientific Attitude. "It is an ethos which allows plenty of scope for individuality," but it insists that individuals support their ideas "by reasons which other people can verify, and that they should be kept within the judgment of critical experiments as to whether they have made out their case." Waddington's diffuse account of the scientific ethical included no enumerated list of components, but his sense of these components was consistent with Merton's and with May's. Further, he
connected the scientific ethos to the "behavior of scientists in their corporate and professional capacity," and he pointed to the "very remarkable agreement among scientists throughout the world" that "Nazism is incompatible with the scientific spirit" and that, for that reason among others, "to be ethically condemned." Although Waddington was distressed with the state of existing democratic societies and called for their reconstruction along the lines of the values more fully embodied in science, he identified himself as a "democrat" and insisted that it was by democratic standards that the political philosophy of Marxism was to be judged.25

Whether the Soviet Union manifested the "democracy" so crucially tied to "science" was, of course, a matter of great disagreement and confusion among antifascist intellectuals in the United States and Britain. That Stalin's government was in the column of democracy was affirmed by Bernal and other Communists as resolutely as it was denied, for example, by Michael Polanyi, whose revulsion at the Soviets as well as the Nazis inspired his own defense of science in terms of the needs of a "scientific community."26 Merton's 1942 text says nothing about the Soviet Union by name, but his 1949 version adds two footnotes (retained, with some revisions, in later printings) about events in Russia, thereby treating Stalin's regime along with Hitler's as antipathetic to at least the "universalism" of science.27 The assertion that "out" system and that of the Soviet Union are merely two kinds of democracy was made by the historian Henry E. Sigerist in an article quoted by Merton to support the conclusion that science has generally flourished in democratic periods of history.

About the basic ideals at issue there was less ambiguity. Whether or not individual antifascist intellectuals regarded socialism in general, and even Soviet Communism in particular, as an extension of the democratic political tradition of the West, many rallied around a set of classically liberal values associated with that tradition. The liberty, equality, and fraternity of individuals was to be defended and expanded without regard to race, nationality, or religion; the free march of the human mind was to be obstructed by no sacred cows, vested interests, or other particularisms. Susceptible as these commitments were to divergent political application, they were specific enough to be contrasted to fascism, and it was in the name of these general commitments that English-speaking antifascist intellectuals of the late 1930s and early 1940s affirmed and sought to clarify the bond between science and democracy.

The commitments reinforced in this episode did not, of course, represent the only ways in which the scientific "spirit" had been depicted, nor had these commitments altogether controlled thinking about the relation of science to democracy. Merton and his contemporaries drew selectively upon a sizable inventory of ideas that were accessible through whatever channels there were to distinguish two loosely connected traditions in the public discussion of science. The first tradition consisted of explicit characterizations of the relation of science to democracy; the second consisted of characterizations of the scientific "spirit," "attitude," or "habit of mind."

Common values were not the only basis suggested for the connection between science and democracy. J. McKean Cattell, longtime editor of Science and one of the early twentieth century's most indefatigable advocates of public support for science, took a materialist approach; he insisted that democracy was dependent upon the ability of science-based technology to create the abundance that Cattell saw as democracy's pre-requisite.28 Elitist notes were commonly sounded under the rubric of "science and democracy," as when John C. Merriam warned that democracy's future was in danger unless the public learned "dependence upon those who know."29 How vacant the notion of "democracy" could become is indicated by the closeness of Merriam's outlook to the view that science and technology had rendered democracy obsolete. Indeed, many affirmations of science's service to "democracy" employed this word as a code for the existing American, and in some cases British, economic and political order; science was depicted, in effect, as a great asset to the nation rather than to a distinctive political culture transcending the American national interest.30 Yet the sense that science and democracy somehow embodied the same anti-authoritarian values was also articulated frequently, if in a less intense manner than was to become typical of the antifascist intellectuals in the late 1930s and early 1940s. John Dewey, Morris R. Cohen, Horace Kallen, and Walter Lippmann were among those who advanced this conviction in the early decades of the twentieth century.31

When Merton in 1942 referred to the "countless writings"32 on the scientific spirit, he identified the second of the two traditions drawn upon by antifascist defenders of science and democracy. Many contributions to this genre were oblivious to democracy. These pronouncements had arisen from a variety of contexts not addressed by Merton, including rivalries between advocates of humanistic and scientific education, and between the scientific profession on the one hand and the elites, on the other, of religion, literature, commerce, and politics. Whatever they said or did not say about democracy, characterizations of the scientific spirit assigned to it a host of qualities which, taken together, were not always compatible. Woodrow Wilson celebrated "calm science seized—revels in ascetic like a nun,"33 but others rejected that science had "no vestige of aged ascension about it," and that its spirit led people to gaze "at their
wholesome, naked selves and out upon a far-flying world. Idle curiosity was essential to Thorstein Veblen's account, while Randolph Bourne stressed an active, omnivorous hunger for experience. Yet the range of attributions to the scientific spirit was not infinite, nor did each quality assigned to the ideal scientist get equal time in public discussion. The qualities emphasized by Merton—and by May—were certainly among those most commonly associated with science during the late nineteenth and early twentieth centuries in the United States and Great Britain. These qualities were emphasized in Sinclair Lewis's romantic novel about the scientific enterprise, Arrowsmith, and less explicitly by John Dewey, the foremost of those in whom the tradition of writings about the scientific spirit had overlapped with the tradition of writings about science and democracy.

Dewey himself survived to become perhaps the most eminent of the American intellectual defenders of science and democracy in the late 1930s and early 1940s. Several features of Dewey's own contribution to that defense can help put Merton's formulation of the scientific ethos in perspective. In 1939 Dewey offered an account of the "scientific morale" parallel in basic respects to the contributions of Merton, Waddington, and the New York conference on "The Scientific Spirit and Democratic Faith." If the similarities between what Dewey offers in an openly polytheistic voice and what Merton offers in a more detached voice can remind us of Merton's participation in the conventions of contemporary liberalism, the differences between the two can show us all the more vividly the distinctness of Merton's participation.

Dewey extolled the "morale of fair-mindedness, intellectual integrity, of will to subordinate personal preference to ascertainment of facts and to share with others what is found out, instead of using it for personal gain," and he depicted this morale as the possession of the "body of scientific inquirers," a small but crucial segment of the population. He hoped this morale would become "a weighty and widespread constituent of culture," and he linked this hope with the "future of democracy." Dewey explicitly called attention to the "disenchantment" of this morale. He contrasted this morale with the protection from "critical inquiry and test" that religions have sometimes afforded certain doctrines: he noted this morale's commitment to the common possession of knowledge; and he wished for a time when this morale's determination to base belief on evidence would replace "habit, accidents of circumstance, propaganda, personal and class bias" as popular foundations for belief. Yet Dewey's account, even when all four components of Merton's formulation are shown to be part of it, is enmeshed within an ambiguous argument on behalf of science's ability to establish moral ends. It lacks, therefore, the straightforward simplicity of Merton's list of norms. Moreover, Dewey, like so many of his fellows, stopped short of attributing to the morality of science the concreteness of a set of norms enforced within a substantial social institution. Finally, Dewey makes no pretense to the critical distance that gives so much added rhetorical power to Merton's formulation: Dewey simply states what he takes to be the values of science, while Merton purports to subject to sociological analysis statements of the order made by Dewey.

When Merton's formulation of the scientific ethos is examined in the context of the period's efforts to defend the political culture science was felt to share with democracy, it becomes apparent how small were the innovations that enabled Merton to make so distinctive a contribution. Three modest innovations were involved. First, instead of offering as his own the language in which the ideals of the scientific life were commonly prescribed or described, Merton endorsed the language by long distance. He had wanted the authenticity of the ideals by describing an objective entity—a body of literature—in which they could be found. Thus Merton was able to reinforce the reigning conventions without becoming an uncritical participant in them. Second, Merton cast to the winds all fear of being thought simplistic and literal-minded; he offered a non-nonsense list of basic ideals that was easy to remember and to employ as a basis for investigating particular cases. Third, he made the deductive leap from the existence of these ideals in the literature to the claim that they actually functioned as norms within the community of science. When Merton declared that "the behavior of scientists" was characterized by "a distinctive pattern of institutional control over a wide range of motives," he offered no evidence other than the fact that certain ideals were indeed set forth in the literature of prescription and condemnation. Whether or not his deduction is justified is a question in sociological theory about which sociologists can argue; the leap, in any event, was as light a stroke as it was a fateful one for the development of the sociology of science.

At the heart of these innovations, especially of the third, was the notion of a "scientific community." This notion had surfaced a number of times before—in the writings of Charles Peirce, to cite a famous example—but Merton put this notion to a use not previously fashionable. He attributed to the community the role of actively maintaining in its members the imperatives that other commentators had grounded in a less distinctly social understanding of science. The ideals of science had been depicted as imperatives often enough, but such imperatives had generally been assigned either to an unspecified and grandly imperial "science," to individual scientists endowed with the personal character...
ideally suited to science, or to procedures and methods which, if carried out often enough by an individual, would of necessity make these ideals part of that individual's character.

Merton's formulation of the scientific ethos occupies in the history of ideas about the enterprise of science a place comparable to that of Frederick Jackson Turner's "frontier thesis" in the history of ideas about the American West. Turner, as Henry Nash Smith has shown, codified in 1893 certain elements in a vital tradition of mythological writings about the American West. Turner also responded to what his generation viewed as something of a crisis: the fear that the closure of the frontier—announced in the census of 1890—would transform the character of American life. Turner's voice, like Merton's, was academic; if Turner translated into scholarly terms a range of beliefs about the West generated and perpetuated by a variety of popular interests, anxieties, and aspirations. Merton translated into academic terms a range of beliefs about science that had been similarly generated and perpetuated.

Merton's formulation of the "frontier thesis," like Merton's of the scientific ethos, took a while to catch on, and to create its academic industry: the contribution that seemed at first to simply share in the conventions of other writings directed to the present crisis was seen, after a few years, to have distinctively reinvigorated those conventions and given them viability with a more critical discourse.

The expansion of the social space allotted to science in modern times inspired, and was reciprocally encouraged by, the hope that science was a vehicle for values accepted by the social constituencies upon which science depended for support, and which were understood to be the beneficiaries of the advancement of science. As the autonomy of science from external influences and demands was increasingly urged and defended in the nineteenth and twentieth centuries, it became all the more important that the moral qualities for which science was ostensibly a vehicle be seen as intrinsic to science: if certain approved imperatives were understood to be endemic to the very enterprise of science, society could rest more comfortably with the expansion of science. Even if the diverse individuals and groups caught up in this dynamic did not always attribute the same values to science, their various accounts of the imperatives of science manifest the same large trust that science possessed both a morality and the effective means to maintain it. A crucial function of Merton's formulation of the scientific ethos was to renew this trust, and to do so in terms of the values his generation of intellectuals was not eager to affirm in the face of fascism.

Was this trust justified? Are we still to regard communities of scientists as vehicles for the classical liberal values? Access to these issues has been limited by the separation of Merton's formulation of the scientific ethos from its original location within the defense of democracy. Students of the scientific enterprise and its historical development will no doubt continue to argue over what role, if any, the Mertonian "norms" play in the actual practice of any given science, but in so doing they will echo a debate in which the stakes were higher.

NOTES


2 The chief exception to this was published in 1952, well before the discipline of sociology of science actually developed: Bernard Barbel, Science and the Social Order (New York, 1952).

3 In his exhaustive survey of the sociological literature on the scientific ethos, Nico Stohr does not even find cause to mention the relation of science to democracy as an issue under discussion. Stohr distinguishes between two active traditions of research and analysis, one concerned with "cognitive" norms and the other with "social" norms, both study life within communities of scientists (see Nico Stohr, "The Ethics of Science Revisited," Sociological Inquiry 48 (1978): 172-196, esp. 178).


5 Robert K. Merton, Social Theory and Social Structure. Toward the Codification of Theory and Research (Glencoe, Ill., 1949), 387-386 (1957 edition, 506-561; 1968 edition, 604-619); Robert K. Merton, The Sociology of Science: Theoretical and Empirical Investigations, ed. Norman W. Storer (Chicago, 1975), 267-278; Robert K. Merton, "The Sociology of Science: An Episodic Memoir," in The Sociology of Science in Europe, ed. Robert K. Merton and Jerry Gaston (Carbondale, Ill., 1977), 489-507. It is perfectly reasonable, of course, that sociologists—including Merton, his followers, and his critics—should focus on what this text has done, and can or cannot still do, for the sociology of science; rarely does the sociological literature address as a historian would the historical setting and significance of this text one very brief but sensible effort to do this, however, has been made in passing by M. D. King, while performing one of the most compelling assessments yet made of the limitations of Merton's work; see M. D. King, "Reason, Tradition, and the Progressiveness of Science," History and Theory 10 (1971): 15-16. Another interesting paper appeared too late for me to use: Yaron Ezrahi, "Science and the Problem of Authority in Democracy," in Science and Social Structure: A Festschrift for Robert K. Merton, ed. Thomas Gleyzer (New York, 1980), 43-86; see esp. 46.

6 Storer, in Merton and Gaston, Sociology of Science, 226.


The Defense of Democracy

ment specifically, he feared that the particular positions taken by John Dewey on problems in ethics and metaphysics would be uncritically accepted because they were so embedded in the amorphous rhetoric of "science and democracy." See Richard McKeon, "Democracy, Scientific Method, and Actions," Ethics 55 (1945): 235-286, esp. 256-257, 273, 278, and 289.


23. Ibid., 44 (emphasis in original).

24. Ibid., 43.


26. The misleading account of this text in Neal Wood, Communist and British Intellectuals (New York, 1959), 132-133, designates it as the "high point of the onslaught on democratic politics." Wippant and unsalable as Waddington's book is, its political content is considerably more complicated than this.


29. Catell took this line in 1912, for example, at a conversation address at Indiana University, he printed it twenty-six years later: J. McKerr Catell, Science and Democracy, Scientific Monthly 65 (1948): 84-88.


31. This is an implication of Ronald C. Tobey's study of the promotional activities of the scientists during the 1950s, and seems to apply the most directly to Robert A Millikan and Michael Pupin; see Tobey, The American Idealism of National Science, 1915-1930 (Pittsburgh, Pa., 1971).


35. Frederick Barry, The Scientific Habit of Thought (New York, 1927), 300.


CHAPTER SIX

Free Enterprise and Free Inquiry: The Emergence of Laissez-Faire Communitarianism in the Ideology of Science in the United States

An irony in the history of relations between science and culture is that the interests of professional communities of scientists, as understood by the recognized leaders of these communities, are not always identical with the general programs for culture advanced in the name of science. The irony is that if this study of the politically salient representation of science is read alongside the story told in the essay on Kulturkampf, reprinted as chapter 8 of this book.

"Free Enterprise and Free Inquiry" traces the gradual displacement of individualism by communitarian terms in assertions of scientific autonomy. The basic idea that the work of scientists should be free from any interference from society had long been expressed in a political language akin to the classical individualist ideology of free enterprise. But this language served the needs of the scientific establishment imperfectly during the era when the National Science Foundation came into being. A major incentive to employ communitarian terms was the ability of these terms to convey a sense that science was practiced by a community possessed of its own polity, its own system of governance. This sense was relevant to the task of justifying huge expenditures of public funds for activities not directly accountable to the elected representatives of the people. If science was guided by its own democracy, there was less need for Congress to take a hand in running it.

What I call "laissez-faire communitarianism"—let the community of science alone—could be construed as an elitist doctrine, a means of isolating the institutionalized leadership of the natural sciences from the society's political processes. Among the people alert for signs of this elitism were some followers of John Dewey, including the journalist Waldemar Kaempffert, who were simultaneously eager to see the society as a whole become more scientific. But the very broadness of their notion of what it meant to be "scientific" made it difficult for the Deweyites to clarify the issues over which they disagreed with the defenders of a distinctive professional cohort dominated by physicists, whose high prestige increased at the end of World War II when the role of physics in the making of the atomic bomb became known. Hence as World War II and the early Cold War transformed the political economy of American science, tension grew between the projects of building a more scientific culture—addressed more directly in "Science as a Weapon in